Council Meeting of Dec.17, 2014

Agenda Item No. 6b

REQUEST FOR COUNCIL ACTION

SUBJECT: West Jordan 2014 Water Conservation Plan Update

SUMMARY: Approve the document "West Jordan 2014 Water Conservation Plan Update" which is required to be submitted to Utah Division of Water Resources, by Utah State Code 73-10-32 once every 5 years by December 31, and will serve as a general guide for future conservation efforts in West Jordan.

FISCAL IMPACT: No direct impact. The Plan recommends various potential water conservation programs. However, the Plan does not commit or bind the City to spend any funds.

STAFF RECOMMENDATION:

Staff recommends approval. The Plan is required to be submitted to the State once every 5 years. The Plan will serve as a guiding document to help recommend several specific water conservation programs, if Council chooses to fund them in the future.

MOTION RECOMMENDED:

"I move to approve the West Jordan 2014 Water Conservation Plan Update."

Roll Call vote required

Prepared by:
Stephen Glain
Mgt. Asst. to City Manager

Approved as to Legal Form:
Robert Thorup
Deputy City Attorney

Recommended by:
Wendell Rigby
Public Works Director

Recommended by:
Bryce Haderlie
Interim City Manager

BACKGROUND DISCUSSION:

West Jordan submitted its first formal water conservation plan to the Utah Division of Water Resources in October 2004, in compliance with the Utah Water Conservation Plan Act (73-10-32 UCA). This state law requires each municipality to submit a plan update once every 5 years. West Jordan's next plan update is due by the end of 2014.

In the past, the City of West Jordan has carried out several small scale water conservation programs (public education, school programs, toilet rebates, water-wise plant rebates, landscape ordinances, landscape awards, etc). Conservation programs were funded in past years as shown in the table below. Programs were discontinued in 2012 in an effort to reduce expenses and keep water rates low.

Fiscal Yr:	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15 (est)
City Funds	$33,021	$49,186	$71,902	$50,435	$1,350	$348	$3,375	0	0	$6,600
JVWCD Grant	0	$50,000	0	$30,260	0	0	0	0	0	$50,000
Totals	$33,021	$99,186	$71,902	$80,695	$1,350	$348	$3,375	0	0	$56,600

Estimated conservation expenses in 2014-15 include $6,600 for an engineering consultant to help write the Conservation Plan Update and up to $50,000 for a "Social Norming" project, if approved by City Council. Any expenditures on these two projects will be 80% reimbursed by the Jordan Valley Water Member Agency Grant.

The Social Norming project would pay for a conservation consultant/vendor to analyze utility billing data, identify high water users, and provide them with a customized report of water consumption with comparisons to "average neighbors" and "efficient neighbors" with similar size properties, and offer conservation tips. This Social Norming approach is considered one of the more effective ways to encourage behavior change in various public utilities, including water, electricity, and natural gas industries.

The 2014 Water Conservation Plan Update document has been prepared through collaboration with city staff and an outside consultant, Hansen Allen Luce Engineering, Inc. The Conservation Plan Update is written so that specific conservation programs are recommended, but will not be implemented unless City Council decides to fund them in the future. The Plan recommends realistic strategies that will help to achieve the City's long term water conservation goals.

THE CITY OF WEST JORDAN, UTAH

A Municipal Corporation

RESOLUTION NO. 14-234

A RESOLUTION ADOPTING THE 2014 WATER CONSERVATION PLAN UPDATE FOR THE CITY OF WEST JORDAN

WHEREAS, it is the goal of West Jordan to implement effective water conservation programs and activities, and to gain public recognition and support for meaningful water conservation efforts; and

WHEREAS, by promoting effective water conservation programs and activities, the City will be able to reduce per capita water use and peak demands;

WHEREAS, the Legislature of the State of Utah enacted legislation [Utah Code Ann. (Supp. 1998) 73-10-32] which requires retail water providers to adopt a water conservation plan and file a copy of the plan with the Utah Division of Water Resources in 2004, and file an update by December 31 every five years thereafter; and

WHEREAS, it is in the best interest of the City to adopt and to implement an updated water conservation plan;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF WEST JORDAN, UTAH, THAT:

Section 1. The West Jordan 2014 Water Conservation Plan Update, a copy of which is attached as exhibit A, is adopted;

Section 2. This Resolution shall take effect immediately.

Adopted by the City Council of West Jordan, Utah, this _____ day of _____ 2014.

_____
Mayor Kim V. Rolfe

ATTEST:

MELANIE S. BRIGGS, CMC
City Recorder

Voting by the City Council	"AYE"	"NAY"
Jeff Haaga	____	____
Judy Hansen	____	____
Chris McConnehey	____	____
Chad Nichols	____	____
Ben Southworth	____	____
Justin D. Stoker	____	____
Mayor Kim V. Rolfe	____	____

WEST JORDAN
UTAH

2014 WATER CONSERVATION PLAN UPDATE

(HAL Project No.: 089.23.100)

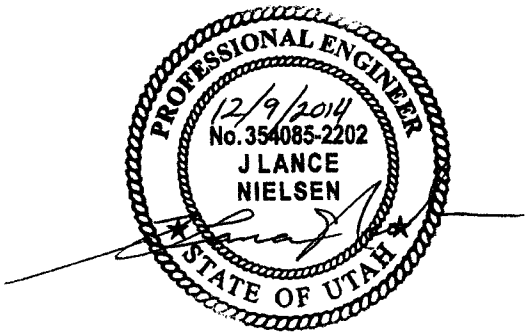
December 2014

HANSEN ALLEN & LUCE inc
ENGINEERS

CITY OF WEST JORDAN

2014 WATER CONSERVATION PLAN UPDATE

(HAL Project No.: 089.23.100)



Project Engineer

HANSEN ALLEN & LUCE inc
ENGINEERS

December 2014

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CHAPTER 1 – INTRODUCTION

Recognizing the need for proactive planning to meet the water needs of its citizens, the City of West Jordan (City) has prepared this 2014 update of its Water Conservation Plan (Plan). The previous Plan was completed in 2004 and was updated in 2009. The Plan describes the drinking water system, reviews historical water use, assesses water conservation measures available to the City, sets goals to conserve water, and identifies existing and proposed water conservation measures to be implemented.

This updated Plan is submitted to the Division of Water Resources under the requirements of Section 73-10-32 of the Utah Code.

CHAPTER 2 – WATER SYSTEM DESCRIPTION

The City of West Jordan is located on the west side of the Jordan River in the center of the Salt Lake Valley and is bordered by Taylorsville & Kearns on the north, South Jordan on the south, and Sandy, Murray, and Midvale on the East. The base economy of the early residents of the West Jordan area was primarily agriculture, mills, and mining activity. In 1941, West Jordan incorporated as a township and then later became a city in 1967. Since 1970, West Jordan has grown rapidly from a rural community with a population of just over 4,000 to a current estimated population of over 110,000 based on US Census data. There are just over 32 square miles within the city boundaries of West Jordan.

SERVICE AREA

The City's drinking water system serves all of the area within the City boundaries except for a 1.2 square mile area in the north part of the City that is served by Kearns Improvement District (Figure 2-1). Based on 2010 census data, the population of the area served by Kearns Improvement District was 12,011. Table 2-1 summarizes the City's population growth and includes estimates of the population served by the City's drinking water system. It also includes projected growth through the year 2030

Table 2-1
Population Growth

YEAR	POPULATION	
	TOTAL	SERVED BY WEST JORDAN
2000	78,036	68,336
2001	82,090	72,290
2002	84,398	74,498
2003	88,500	78,487
2004	92,575	82,475
2005	95,620	85,418
2006	97,700	87,365
2007	101,000	91,028
2008	102,660	92,660
2009	104,600	93,587
2010	106,511	94,500
2011	107,500	96,286
2012	108,346	96,954
2013	110,077	98,271
2020	132,750	
2030	169,104	

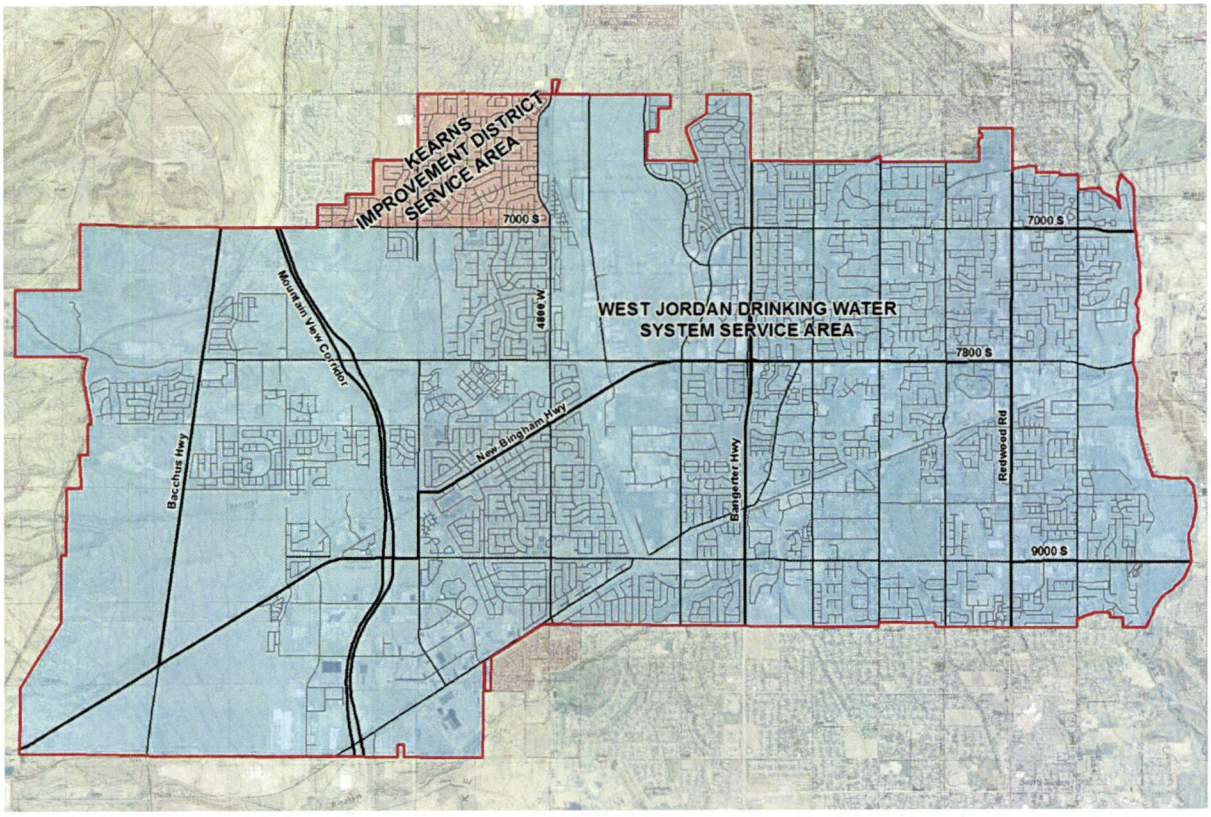

Figure 2-1: West Jordan Drinking Water System Service Area

TYPES OF USE

The City's drinking water system serves residential, commercial, and industrial customers throughout the City for both indoor and outdoor water uses. Residential areas spread from the Jordan River on the east to west of the Bacchus Highway. Several large commercial and Industrial use areas are strategically located to support the economic base of the City.

Secondary irrigation water supplied from canals and wells is available to a small portion of the City. This includes 5 city parks, two housing developments, a cemetery, a golf course, two public schools and several homes and businesses throughout the City. The total volume of secondary water estimated to be used within the City is less than 10% of the volume of water supplied by the drinking water system.

INVENTORY OF WATER SOURCES

The City currently receives drinking water from four active wells and connections to Jordan Valley Water Conservancy District's (JVWCD) wholesale water system. Table 2-2 summarizes the water supplied to the City's drinking water system since the year 2000.

Table 2-2
Drinking Water Supply Summary

Year	City Wells (acre-feet)	JVWCD Purchase (acre-feet)	Total Supply (acre-feet)
2000	3,652	13,715	17,367
2001	4,668	13,289	17,957
2002	3,922	13,021	16,943
2003	2,938	13,527	16,465
2004	2,712	14,111	16,823
2005	1,980	15,040	17,020
2006	2,682	14,994	17,676
2007	3,031	18,559	21,590
2008	2,929	17,097	20,026
2009	2,114	16,430	18,544
2010	2,924	16,520	19,444
2011	2,728	15,565	18,293
2012	3,192	18,708	21,900
2013	2,705	17,845	20,550

Secondary irrigation water is supplied from several small wells, one City-owned well and five irrigation canals. The canals include the North Jordan Canal, the South Jordan Canal, the Utah and Salt Lake Canal, the Utah Lake Distributing Canal, and the Welby-Provo Reservoir Canal. Water supplied by these secondary irrigation water sources is not metered, with the exception of some meters on City-owned park irrigation systems. However, based on the estimated number of acres irrigated by these sources, the annual secondary irrigation water supplied is around 1,300 acre-feet/year.

WATER BUDGETS

Water budgets have been prepared by the City for the drinking water system from 2001 through 2013, and are presented in Table 2-3.

Table 2-3
Water Budgets

Year	Produced (ac-ft)	Metered (ac-ft)	% Difference
2001	17,957	17,523	2.4%
2002	16,943	16,510	2.6%
2003	16,465	15,773	4.2%
2004	16,823	16,254	3.4%
2005	17,020	16,419	3.5%
2006	17,676	17,227	2.5%
2007	21,590	20,938	3.0%
2008	20,026	19,463	2.8%
2009	18,544	17,465	5.8%
2010	19,444	18,177	6.5%
2011	18,293	17,149	6.3%
2012	21,900	21,436	2.1%
2013	20,550	19,684	4.2%

Possible explanations for unaccounted for water include leaks, meter inaccuracies, pipeline flushing, construction activities, fire hydrant testing, and use at unmetered connections. It is normal for drinking water systems to have up to 10% of their supplied water be unaccounted for. As shown in Table 2-3, the City has consistently limited water losses to between 2% to 4% of the water supplied to their system, with the exception of three years from 2009 to 2011 when losses increased to around 6%. In late 2011 to early 2012, several of the City's largest commercial meters were replaced. Some of these new meters are now measuring 2 to 3 times more water than before they were replaced. A possible explanation for why losses increased in 2009 through 2011 and then decreased again in 2012 is that the meters began to fail in 2009 and reported inaccurately low volumes until they were replaced. The history of low water losses is a good indication that the water system is well managed and in good condition.

HISTORICAL WATER USE

The City's historical per capita water use in gallons per capita per day (gpcd) is shown in Figure 2-2 along with the State of Utah water conservation goal (25% reduction of per capita water use by 2025). The data shown on this figure are based upon the population served by the City's drinking water system and not the total City population. Since total water use depends on the number of customers, per capita values are a better measure of individual water use over time.

Per capita water use in the City had a rapid decline from 2000 through 2003. Since 2003, there has been a slight downward trend with the exception of a couple of high water use years in 2007 and 2012. Precipitation data for the Salt Lake Valley indicate that these were the driest two years since 2003. This likely resulted in residents and businesses using more water for irrigation. In every year since 2000, the City has maintained the per capita water use below the State of Utah water conservation goal.

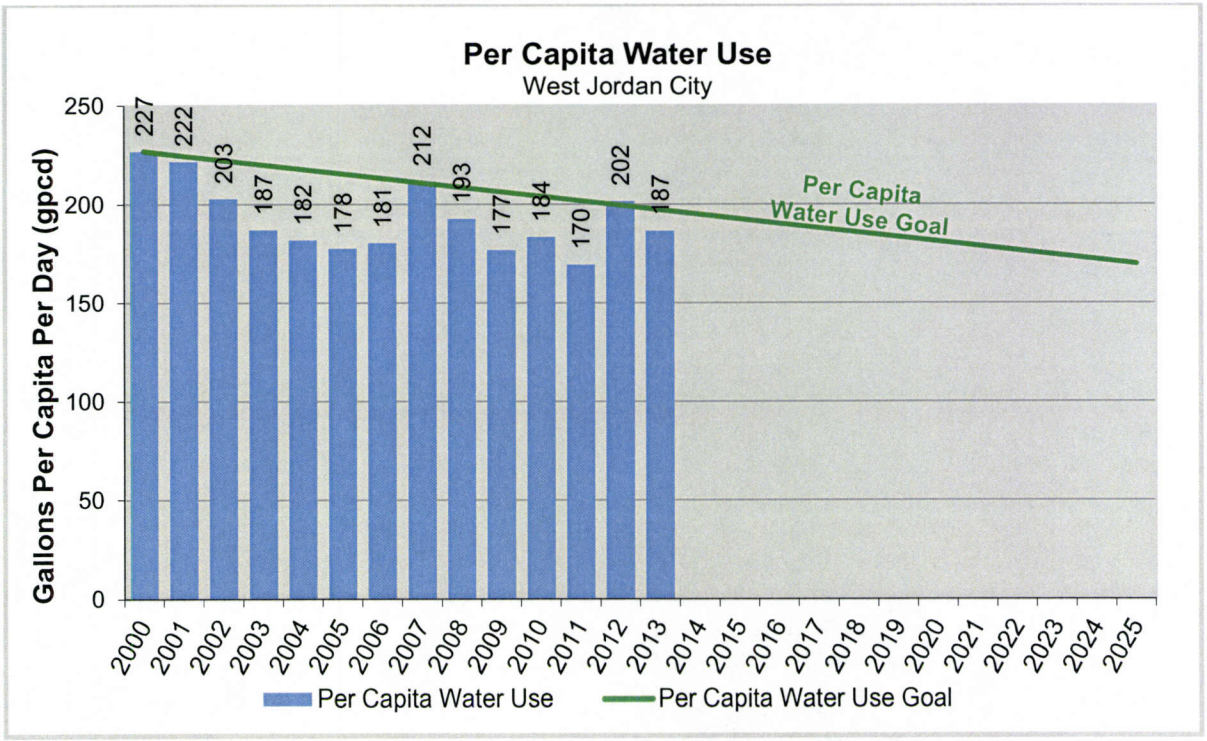

Figure 2-2: Per Capita Water Use West Jordan City, 2000–2013

Figure 2-3 illustrates the seasonal pattern of water use for the drinking water system. In 2013, the City delivered almost four times as much water in July as it did in February. Conservation is most effective during summer months, where irrigation and other outdoor uses add to the overall water demand.

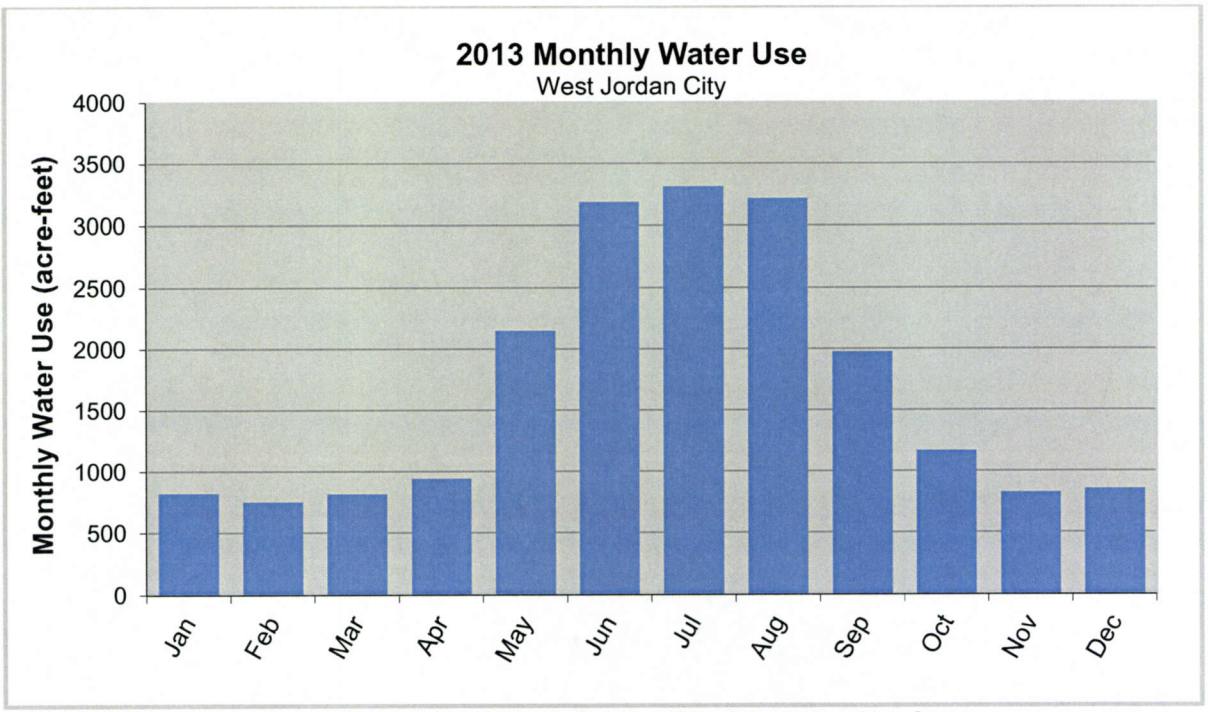

Figure 2-3: 2013 Monthly Water Use West Jordan City

FUTURE WATER USE

Based on the City's population projections shown in Table 2-1, the population is estimated to be approximately 150,000 by the year 2025. The City has adopted the State of Utah water conservation goal to reduce per capita water use by 25% by the year 2025 using year 2000 per capita water use as the benchmark. The City's per capita water use in 2000 was about 227 gpcd (gallons per capita per day). Therefore, the goal is to reduce water use to 170 gpcd (25% reduction) by 2025. Current water use in the City averages around 185 gpcd.

Assuming pre-conservation water use (227 gpcd), the 2025 water use is estimated to be about 38,100 acre-feet per year (ac-ft/yr). Assuming the current average water use, the City is expected to use approximately 31,100 ac-ft/yr in 2025. However, if the City achieves its water conservation goal, the estimated water use in 2025 is reduced to about 28,600 ac-ft/yr. This represents a reduction of 2,500 ac-ft in the year 2025 compared to current usage rates and a reduction of 9,500 ac-ft compared to pre-conservation usage rates.

WATER RATES

Since the year 2000, the City has regularly reviewed water rates with a goal to set rates that encourage water conservation. This has included adjustments to the base availability rate (the cost of access to the system), adjustments to the usage costs (cost per 1,000 gallons), and adjustments to usage rate tiers. The current water rates for the City's drinking water system are summarized in Table 2-4.

Table 2-4
Water Rates

Availability Charges	
Meter Size	**Monthly Rate**
Residential	
¾" or 1"	$23.11
Commercial	
1"	$40.24
1.5"	$53.09
2"	$80.45
3"	$241.35
4"	$514.87
6"	$933.22
8"	$1,399.83
10"	$2,043.42
Usage Charges	
Usage Rate Tiers (gallons)	**Usage Rate ($/1,000 gallons)**
0 – 7,000	$1.04
7,000 – 20,000	$1.26
20,000 – 50,000	$1.50
over 50,000	$1.81

CHAPTER 3 – WATER CONSERVATION GOALS

PROBLEMS

West Jordan City is concerned with the potential waste of water from inefficient indoor and outdoor water use. The following specific concerns have been identified:

- Water use in the summer months is almost four times the water use in the winter months. As a result, the promotion of more efficient outdoor water usage provides an opportunity for water conservation.
- Water use during dry years is significantly higher than in normal water years. Promotion of more drought tolerant landscaping also provides an opportunity for water conservation.
- The City would like to encourage a water conservation culture throughout the water system.
- Potential for further indoor and outdoor conservation still exists.

GOALS

West Jordan City has set goals to address the identified problems and to promote conservation. The City currently supports the statewide goal set in 2000 by the Utah Division of Water Resources to reduce water use 25% by 2025. In 2013, Gov. Gary Herbert renewed the challenge: "In the year 2000 we set a target to use 25% less water by the year 2050, and we've already reduced our consumption by 18%. So let's go one step further. Let's cut the time in half, and achieve that goal by the year 2025." West Jordan City has already made considerable progress toward this goal, reducing per capita water use by 18% since 2000. The City will continue working to further conserve its water resources and meet or exceed the original statewide goal.

The following water conservation goals have been identified by the City to aid them in their overall goal to achieve 25% reduction in per capita water use by 2025:

- The City will continue to implement the water conservation measures currently in effect as defined in Chapter 4.
- The City's water rate structure has been reviewed annually and adjusted based on cost of operations. The City will consider future rate adjustments to encourage wise water use.
- The City will promote a water conservation culture by investigating the implementation of "social norming" strategies which are intended to create social pressure to conserve water.

CHAPTER 4 – WATER CONSERVATION MEASURES

EXISTING CONSERVATION MEASURES

The City is already implementing, and will continue to implement, the following water conservation measures.

- A portion of City staff responsibilities include periodic review of water conservation efforts, implementation of conservation efforts and reporting to City administration the progress towards reaching the City's water conservation goals.
- The City has a commercial landscape ordinance that requires all new non-residential developments to install water efficient landscapes as codified in Title 13, Chapter 13, Section 13 of the municipal code.
    - Requires metering and monitoring of irrigation systems.
    - Establishes a baseline landscape water consumption allowance for each month of the year through the required use of a water allowance worksheet that promotes conservation.
    - Provides for monthly monitoring of irrigation use compared to the baseline water consumption allowance.
    - Provides for a City water audit for habitual exceedance of the baseline water consumption allowance.
- Irrigation of public landscaped areas is monitored by the City to promote conservation.
    - Six of the City's parks and public landscaped areas use secondary water from canals for irrigation instead of the use of drinking water for irrigation. These parks include Brown's Meadow Park, Constitution Park, Veteran's Memorial Park, Plum Creek Park, the Soccer Complex, and the Main Cemetery.
    - All City park irrigation systems are metered to monitor water use.
    - The City is funding and implementing a SCADA controlled irrigation system for parks to allow for more efficient watering.
    - The City drinking water system staff provides water usage reports to the parks department staff to allow for continued monitoring of water use for efficiency.
- The City has an active public education program that promotes water conservation to residential and commercial water users.
    - Water conservation information is provided annually to customers within the West Jordan City Water Quality Report.
        - Informs customers of water conservation goals.
        - Promotes indoor and outdoor conservation strategies.
        - Refers customers to conservewater.utah.gov for real-time watering recommendations.
    - The City maintains a Water Conservation page on their website.
        - Provides a lawn watering guide that promotes conservation.
        - Discusses need for conservation and City conservation efforts.
        - Provides links to water conservation resources including Jordan Valley Water Conservancy District (www.jvwcd.org), the Slow the Flow program (www.slowtheflow.org), and the Governor's Water Conservation Team (conservewater.utah.gov).
    - The City provides a section on each customer's water bill that compares current usage to the customer's previous 13 months of usage along with a reminder to conserve water.
- The City has adopted the International Plumbing Code (IPC) which requires installation of water-saving fixtures in new construction (Municipal Code: 10-1-5). Maximum flow

rates as defined by IPC 604.4 are as follows:
    - Shower head: 2.5 gpm at 80 psi
    - Sink faucet: 2.2 gpm at 60 psi
    - Toilet: 1.6 gal per flush
- The City has adopted an inclining block water rate structure that encourages conservation through increased rates for high water use (see Table 2-4).
    - Rates have been updated regularly since the year 2000.
    - An annual review of water rates is performed based on cost of operations with consideration for conservation.
- Existing City code provides for drought management of water use (Municipal code: 9-6).
- The City has organized a Sustainability Committee (previously called the Water Conservation Committee) with citizen representatives that holds monthly meetings to provide guidance on City water conservation efforts.

PROPOSED ADDITIONAL CONSERVATION MEASURES

The following conservation measures are proposed by the City for potential future implementation.

New Conservation Measures:

- The City has acquired a grant from Jordan Valley Water Conservancy District to study and implement a social norming (or social comparison) project. The social norming project will target high water users and send custom reports of their water consumption compared to the "average similar customer" and the "efficient similar customer." Similar customers are determined by similar lot size, meter size, etc. This creates social pressure for the high water users to be more conservation oriented.
- The City proposes to perform periodic review of commercial and residential landscape ordinances to ensure balance between aesthetics and water wise landscape and irrigation standards.

Past West Jordan City Conservation Measures for Future Consideration:

- The City has distributed conservation information packets advertising water conservation programs to customers either in individual mailings or as bill inserts.
- The City has implemented an ultra-low-flush toilet (ULFT) rebate program. Between 2006 and 2009, the City provided more than 500 rebates for ULFTs.
- The City has implemented a water-wise plant rebate program which offered $50 rebates for plants on the waterwiseplant.utah.gov plant list if the plants are placed such that it is watered separately from turf grass. Between 2006 and 2009, the City provided more than 80 rebates for water-wise plants.
- The City has presented annual Water-Wise Landscape Awards to 2 residential and 2 commercial customers.
- The City has conducted a 4th Grade Water Conservation Education Program. The program assisted 4th grade teachers in teaching principles of water conservation and distributed conservation packets that included low-flow shower heads and faucet aerators. Between 2006 and 2009, over 2,000 packets were distributed.

Other Potential Conservation Measures for Future Consideration:

- Large local water districts have developed comprehensive water conservation programs that can support the City's water conservation goals. The City could implement similar strategies or promote the existing programs to their customers. A summary of the water

conservation programs offered by the following water agencies is included in Appendix A.
    - Jordan Valley Water Conservancy District (JVWCD)
    - Central Utah Water Conservancy District (CUWCD)
    - Metropolitan Water District of Salt Lake and Sandy (Metro)
    - Weber Basin Water Conservancy District (WBWCD)
- The Utah Division of Water Resources has published a water conservation plan template for use by water agencies within Utah. This template recommends 14 best management practices (BMPs) for water conservation. A reproduction of the BMPs is included in Appendix A.

COST OF CONSERVATION MEASURES

Table 4-1 summarizes West Jordan City expenditures for water conservation measures since 2005. It also includes budgeted conservation expenditures for fiscal year 2014-2015. Budgeted items for 2014-2015 include $50,000 for implementation of a Social Norming program and $6,600 for completing the 2014 Water Conservation Plan Update.

Table 4-1
Water Conservation Program Expenditures

Fiscal Year	City Funds ($)	JVWCD Grant ($)	Total ($)
2005-2006	33,021	0	33,021
2006-2007	49,186	50,000	99,186
2007-2008	71,902	0	71,902
2008-2009	50,435	30,260	80,695
2009-2010	1,350	0	1,350
2010-2011	348	0	348
2011-2012	3,375	0	3,375
2012-2013	0	0	0
2013-2014	0	0	0
2014-2015	6,600	50,000	56,600

The cost effectiveness of conservation programs is important for the City to consider in the selection of measures for implementation. Based on the City's past implementation of conservation measures, the cost per acre-foot of water saved was calculated for several conservation measures. Conservation measures that are focused primarily on public education are difficult to quantify because there is not a direct correlation between the cost of providing the education and the amount of water saved. Some public education strategies have a very low cost, such as providing conservation information on the City's website and on required mailings (Water Quality Report, billings). These strategies are expected to have a very low cost per acre-foot of water conserved.

An evaluation of several potential conservation measures, including the ease of implementation and estimated cost per acre-foot of water savings, is included in Appendix B.

CHAPTER 5 – IMPLEMENTATION PLAN

This Water Conservation Plan renews the existing water conservation measures for at least the next five years. Existing and proposed water conservation measures will be implemented according to Table 5-1.

Table 5-1
Water Conservation Implementation Plan

Conservation Measure	Implementation Plan
Social Norming	Within the following year: • Use JVWCD grant to identify high water users, average similar customers, and efficient similar customers for similar water user groups. • Send custom reports to high water users comparing their use to the average and efficient similar customer.
Landscape Ordinance	Administer Landscape Ordinances (13-13-13): • Continue to monitor commercial irrigation metered use. • Compare use with baseline water consumption allowance. • Notify users when allowance is exceeded. • Provide water audits for habitual exceedance of allowance. • Perform periodic review of commercial and residential landscape ordinances to ensure balance between aesthetics and water wise landscape and irrigation standards.
Irrigation of Public Landscaped Areas	Promote conservation for public irrigated areas: • Use secondary water at facilities where secondary water is available. • Continue to meter water use at all parks and provide water usage reports to the parks department to monitor efficient water use. • Implement SCADA controlled irrigation systems for parks to allow for more efficient watering.
Public Education Program	Promote water conservation to residential and commercial water users: • Provide water conservation information in the annual Water Quality Report. • Maintain and promote the City's water conservation webpage. • Continue to provide 13 month usage comparison on customer water bills with a reminder to conserve water.
International Plumbing Code	Continue to enforce International Plumbing Code for new development that requires low flow shower heads, sink faucets, and toilets.
Conservation Water Rates	• City has adopted an inclining block water rate structure that encourages conservation that has been updated regularly. • Consider water conservation during annual review of water rates.
Drought Management Ordinance	Municipal Code (9-6): • Provides for management of water use during drought conditions.
Sustainability Committee	Monthly meetings with citizen representatives to provide guidance on City water conservation efforts.
Past West Jordan City Conservation Measures	Consider future implementation of the following: • Distribution of water conservation packets. • ULFT rebate program. • Water-wise plant rebate program. • Water-wise landscape awards.
Other Conservation Measures	Consider future implementation of other conservation measures included in Appendix A.

CHAPTER 6 – ADOPTION OF PLAN

Pursuant to Subsection 73-10-32(2)(a) of the Utah Code, the City's governing body shall devote part of at least one regular meeting every five years to discussion and formal adoption of the Water Conservation Plan. Minutes of such meetings shall be included as an appendix to the Plan. The City shall also provide media access to the Plan and allow public comment on it. These actions serve to increase awareness of the Plan and encourage public involvement in its implementation, leading to a more effective water conservation effort.

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APPENDIX A

Additional Water Conservation Strategies

WATER CONSERVATION PROGRAMS BY LOCAL WATER DISTRICTS

The following table summarizes water conservation programs currently being implemented by large local water districts. The City may consider implementation of similar programs or promoting existing programs to their customers.

CONSERVATION PROGRAM	JVWCD	CUWCD	METRO	WBWCD
Water Conservation Website: ▪ Promotes need for conservation. ▪ Provides tips for indoor conservation strategies such as fixing leaking fixtures, low-flow appliances, etc. ▪ Provides tips for outdoor conservation strategies such as plant selection, watering strategies, etc. ▪ Advertises other conservation programs implemented by the District. ▪ Provides links to other online conservation tools such as the Governor's Water Conservation Team website and the Slow the Flow website.	✔	✔	✔	✔
Conservation Demonstration Garden: ▪ Demonstrates water-wise landscaping strategies. ▪ Provides examples of water-wise plants. ▪ Provides examples of water-wise irrigation strategies. ▪ Provides education materials for home implementation of water-wise landscaping.	✔	✔	✔	✔
Water Conservation Classes: ▪ Teach conservation strategies in a class environment. ▪ Provides direct interaction with conservation specialists to answer specific questions from attendees.	✔			✔
School Field Trips: ▪ Host field trips from schools to teach conservation principles to students of all ages.	✔			
Water Checks: ▪ Perform water checks for residential, commercial or industrial customers. ▪ Evaluate site specific soil type, infiltration rates, irrigation application rates and efficiency, and lawn root depth. ▪ Provide recommendations for more efficient irrigation and/or landscaping.	✔			✔
Workshops for Landscape Professionals: ▪ Certifies landscapers in the science of water-wise landscaping.	✔			
Model Water-Efficient Landscape Ordinance: ▪ Provides an example landscaping ordinance for other water agencies to adopt that promotes proper design, installation & maintenance of waterwise landscapes.	✔			
Rebates and Grants: ▪ Provides rebates for efficient irrigation products including smart controllers and weather stations, specialized efficient sprinkler nozzles, and drip irrigation regulators, filters and kits. ▪ Provide small grants for water users to purchase and use equipment that has been shown to reduce water use.		✔		
Provide Education Material: ▪ Provide education materials for teaching water conservation including teacher and student manuals.		✔		
Garden Fair: ▪ Host free, open house, events at the conservation demonstration garden. ▪ Provide water conservation and landscaping specialists to interact with participants.				✔

ADDITIONAL CONSERVATION MEASURES RECOMMENDED BY THE UTAH DIVISION OF WATER RESOURCES

Additional conservation measures your entity may consider, enhancing conservation efforts and results. The following is a list of Best Management Practices (BMPs) recommended to water providers by the Utah Division of Water Resources. Once completed, use this information to write the Additional Conservation Measures Section of your Water CCP.

BMP 1 – Comprehensive Water Conservation Plans

- Develop a water management and conservation plan as required by law, and submit to the Utah Division of Water Resources.
- Plans are to be adopted by the water agency authority (city council, board of directors, etc.) and updated no less than every five years.

BMP 2 – Universal Metering

- Install meters on all residential, commercial, institutional and industrial water connections. Meters should be read on a regular basis.
- Establish a maintenance and replacement program for existing meters.
- Meter secondary water at the most specific level possible, somewhere below source water metering. Individual secondary connection metering should be done as soon as technology permits.

BMP 3 – Incentive Water Conservation Pricing

- Implement a water pricing policy that promotes water conservation.
- Charge for secondary water based on individual use levels as soon as technology permits.

BMP 4 – Water Conservation Ordinances

- Adopt an incentive water rate structure.
- Adopt a time-of-day watering ordinance.
- Adopt an ordinance requiring water-efficient landscaping in all new commercial development. This should include irrigation system efficiency standards and an acceptable plant materials lists.
- Adopt a landscape ordinance that encourages water conservation.

BMP 5 – Water Conservation Coordinator

- Designate a Water Conservation Coordinator to facilitate water conservation programs.

BMP 6 – Public Information Program

- Implement a public information program consistent with the recommendations of the Governor's Water Conservation Team. Such programs can be adapted to meet the specific needs of the local area and may use the "Slow the Flow" logo with approval of the Utah Division of Water Resources.

BMP 7 – System Water Audits, Leak Detection and Repair

- Set specific goals to reduce unaccounted for water to an acceptable level.
- Set standards for annual water system accounting that will quantify system losses and trigger repair and replacement programs, using methods consistent with American Water Works Association's *Water Audit and Leak Detection Guidebook*.

BMP 8 – Large Landscape Conservation Programs and Incentives

- Promote a specialized large landscape water conservation program for all schools, parks and businesses.

- Encourage all large landscape facility managers and workers to attend specialized training in water conservation.
- Provide outdoor water audits to customers with large amenity landscapes.

BMP 9 – Water Survey Programs for Residential Customers

- Implement residential indoor and outdoor water audits to educate residents on how to save water.

BMP 10 – Plumbing Standards

- Review existing plumbing codes and revise them as necessary to ensure water-conserving measures in all new construction.
- Identify homes, office building and other structures built prior to 1992 and develop a strategy to distribute or install high-efficiency plumbing fixtures such as ultra low-flow toilets, showerheads, faucet aerators, etc.
- Offer rebates for high efficiency appliances to promote water conservation indoors.

BMP 11 – School Education Programs

- Support state and local water education programs for elementary school students.

BMP 12 – Conservation Programs for Commercial, Industrial and Institutional Customers

- Change business license requirements to require water reuse and recycling in new commercial and industrial facilities where feasible.
- Provide comprehensive site water audits to those customers known to be large water users.
- Encourage the installation of separate meters for landscapes.

BMP 13 – Reclaimed Water Use

- Use reclaimed or recycled water where feasible.

BMP 14 – "Smart Controller" Technology

- Install "smart controller" technology to irrigate public open spaces where feasible.
- Encourage customers to utilize "smart controller" technology by offering rebates for these products.

In addition to these, the website www.conservewater.utah.gov provides additional information for conservation practices. The is also available to assist your water agency in finding the best conservation practices for your entity. Once determined, use this information to write the Additional Conservation Measures Section of your WCP.

APPENDIX B

Evaluation of Costs for Conservation Strategies

EVALUATION OF COSTS FOR WATER CONSERVATION STRATEGIES

CONSERVATION STRATEGY	PUBLIC ACCEPTABILITY & EASE OF			OVERALL RATING			COST PER ACRE-FOOT[B]
	Easy	OK	Hard	Best	OK	Poor	
Adopting Commercial/Institutional Landscape Ordinance		✔		✔			$14
Ultra - Low Flow Toilets		✔			✔		$75
"Water Check" Audit Program	✔			✔			$50
4th Grade Education Program including distributing water saving shower heads and faucet aerators.	✔				✔		$235
Implement "Social Norming"	✔				✔		Unknown
Public Education	✔				✔		Unknown
Low Flow Showerheads	✔				✔		$130
Low Flow Washing Machines	✔				✔		$160
Vegetation reduction - xeriscaping			✔			✔	$260
Replacing Aging Pipes and Meters (Good Practice)		✔			✔		Unknown
Water Rates - Restructure		✔			✔		Unknown
Weather Smart Monitor System - Public Irrigation areas controlled by Weather Station (Parks, Schools and Cemetaries.)	✔			✔			$40
Summer intern - Education Programs for Elementary Schools, Educational Brochures and Educational Classes taught by intern. Promote Slow the Flow Program including free water checks.	✔			✔			$70

Notes:

A. Principal sources used in development of this table include:
   1. Utah's M&I Water Conservation Plan, Investing in the Future, July 2003, State of Utah natural Resources Division of Water Resources.
   2. Water, A Comparative Study of Urban Water Use Across the Southwest, December 2003, Western Resources Advocates, Boulder, Colorado.
   3. Waterwise Plan, Jordan Valley Water Conservancy District, West Jordan, Utah.

B. ULFT Rebate, Landscape Ordinance, "Water Check" audit, & 4th Grade Education program costs based on West Jordan City experience.